

Abstract of the Disclosure

A communication system using OFDM transmission from a base station to subscriber units, includes means for achieving a bi-directional channel. These means comprise transmitting means in the subscriber units for the transmission of signal synchronous with the guard time interval in the OFDM transmission, and receiving means in the base station for the reception of the transmitted signals. The system also includes signal shaping means in the receiver of the base station and/or the subscriber unit for the application of a window in time to signals received therein. A communication system includes a combination of CDMA modulation codes and OFDM coding/decoding means to achieve orthogonality between signals from the various users in the uplink. A communication system includes a combination of OFDM and channeling means for achieving orthogonality between signals from the various users in the uplink. Automatic Frequency Control is achieved with means in the mobile unit for achieving a frequency-lock to the base station.